

Dillwynia rupestris (Fabaceae: Mirbelieae), a new species from the New England Tableland of New South Wales

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Abstract

Jobson, Peter C.^{1,2} and Weston, Peter H.¹ (¹National Herbarium of New South Wales, Royal Botanic Gardens, Sydney, NSW 2000, Australia, ²Dept. of Environmental Sciences, University of Technology, Sydney, Gore Hill, NSW 2065, Australia) 2001. *Dillwynia rupestris* (Fabaceae: Mirbelieae), a new species from the New England Tableland of New South Wales. *Telopea* 9(2): 323–327. *Dillwynia rupestris* Jobson and P.H. Weston, a new species from the New England Tableland of New South Wales is described along with its ecology, distribution and conservation status. *Dillwynia rupestris* closely resembles *D. acicularis*, but differs in having broader, mostly shorter leaves, mucros being paler and less conspicuous; and inflorescences having more flowers and being tightly arranged in structure.

Introduction

The 'granite country' of the New England Tableland runs for approximately 400 kilometres in length from Stanthorpe in southern Queensland to near Tamworth in central New South Wales. The communities associated with these outcrops are both diverse and significant in the number of rare and restricted taxa present (Hunter & Clarke 1998). This new species is endemic to this 'granite country'.

Dillwynia rupestris Jobson & P.H. Weston is a member of the section *Xeropetalum*. This species has been recognised informally for the last thirty years, and for the *Flora of New South Wales* treatment (Weston 1990) was called *Dillwynia* species A. Strangely, Beadle (1976) did not include it in his treatment for his *Student's Flora of North Eastern New South Wales*, although collections made in the 1960s by J.B. Williams, are housed at the N.C.W. Beadle Herbarium (NE). One of us (PCJ) has examined this species in the field and was able to make observations of its habit and habitat. We name this new species below, provide information on its distribution and ecology, and assess its conservation status. We also compare it with species that appear to be its closest relatives.

Taxonomy

Dillwynia rupestris Jobson & P.H. Weston, sp. nov.

Frutex erectus 0.5–2.5 m altus; folia ad extremitates ramulorum saepe fasciculata, teretia, leviter carinata, 0.7–2.1 cm longa, 0.7–2.1 cm lata; inflorescentia terminalis, triflora vel multiflora; bracteolae ovatae, extra pubescentes, intra glabrae marginibus grosse fimbriatis in dimidio inferiore; calyx pubescens, cinereus vel fuliginosus; fructus testaceus vel pallide rubiginosus pilis albi vestitus.

Holotype: New South Wales: Northern Tablelands: S side of Gwydir Hwy, 64.4 km ENE of Glen Innes in Gibraltar Range National Park, 29°32'20"S 152°16'08"E, P.C. Jobson 5522 & C.C. Simpson, 12 September 1998 (NSW 437843). Isotypes: AD, BRI, CANB, CHR, E, K, MEL, MO, NY, W.

[*Dillwynia* sp. A. in Weston (1990)]

Erect, single-stemmed shrub 0.5–2.5 m high. Bark slightly fissured, red-brown to dark brown becoming grey to black with age, with olive flanges (the remnants of the persistent decurrent leaf bases). Branches and branchlets with prominent flanges (from persistent decurrent leaf bases), light brown to yellow-brown, branchlets occasionally grey, with antrorse appressed white hairs 0.1–0.5 mm long, occasionally glabrous. Leaves ascending to loosely antrorse–appressed, linear, subterete, slightly keeled, covered with dirty white hairs when young, becoming glabrous with age, occasionally retaining white antrorse hairs on lower surface of the basal half of the leaf, colliculate to papillate, often clustered towards upper ends of branches; young leaves lime green; petiole 0.75–1.75 mm long, yellow; decurrent leaf bases yellow and covered with dirty white hairs, becoming glabrous with age, often colliculate at swollen apex, 0.5–2.0 mm long; lamina with a longitudinal adaxial groove, curving concavely, 0.6–1.9 cm long, 0.75–1.0 mm wide; apex mucronate, micro (0.25–)0.5–0.75 (–1.0) mm long, yellow or with brown tip; stipules present, inconspicuous, brown to black, scarious, c. 0.25 mm long. Inflorescences terminal, 3–18-flowered. Pedicels covered in silky white hairs, 1–3 mm long; peduncles absent; rachis covered in silky white hairs, 3.0–6.5 mm long. Bracts broad-ovate, c. 2 mm long, often caducous before anthesis; apex acuminate; adaxial surface covered in long, silky white to light red-brown hairs; abaxial surface glabrous, dark red-brown. Bracteoles broad-ovate, attached to pedicel 0.5–2.0 mm below calyx tube, c. 1.5 mm long; margins coarsely fimbriate in lower half; apex recurved outwards and scarious, dark brown to black; adaxial surface covered in long, silky, white to dirty white hairs; abaxial surface glabrous except for a tuft of white hairs at base, red-brown, colliculate. Buds grey with blackish lobes, upper calyx lobes deeply cucullate. Calyx grey to greyish black, often with the calyx lobes black, covered with grey to dirty white hairs, 3.5–6.0 mm long, ribs inconspicuous; calyx tube campanulate; lobes shorter than or roughly equal to tube; lower lobes broad-acute to triangular; upper lobes v-shaped notched, strongly divergent, margins with white crisped hairs. Standard with basal narrow rectangular claw and lamina broad-ovate with a shallow U-notch separating lobes; lamina concave with undulating margin, 6.0–9.0 mm long, 8.0–14.0 mm wide; lobes broad-obovate to almost circular, yellow with narrow red band (crescent) and occasional veining above claw; claw yellow, occasionally with a longitudinal groove, 2.0–3.0 mm long, 0.5–1.25 mm wide. Wings oblong to broad-obovate, completely obscuring the keel, imbricate, obtuse, occasionally emarginate towards upper margin, yellow at apex grading to rosy pink midway to base, base often cream; lamina 6.0–9.0 mm long, 3.0–5.0 mm wide; claw 2.5–3.5 mm wide. Keel linear-lanceolate in overview, spatulate in lateral view, with apex cucullate, shortly acute, yellow-green at apex grading to rosy pink or red midway to base and yellow-green at base, 4.5–6.5 mm long, 2.0–3.0 mm wide; upper margin papillate; claw c. 2 mm long. Stamens articulated onto a sessile basal ring, filaments 3.0–5.5 mm long; anthers 0.5–1.0 mm long. Gynoecium 5.0–6.5 mm long; ovary white-pubescent, 2.0–3.0 mm long; stipe glabrous c. 1 mm long; style hooked, glabrous, 2.0–2.5 mm long; stigma capitate. Pod ovoid, turgid, yellow-brown to light red-brown, covered with white, loosely appressed hairs, occasionally becoming glabrescent with age but always retaining a tuft of hairs at apex, 4.5–6.0 mm long, 3.75–5.0 mm wide; petals persistent until fruit dehiscence. Seeds ovoid, smooth, olive-brown, 2.0–2.5 mm long; aril cream.(Fig. 1).

Phenology: flowers in mid-September to early October; fruits, with seed, from late October to early February, pods persistent to March.

Distribution: known only from granite outcrops within the Gibraltar Range, and the Serpentine Nature Reserve, south of Ebor (L. Copeland, pers. comm.).

Habitat: in either shrubland bordering open forest or low heaths or in pavements of granite outcrops. The associated species found in these low heaths on granite pavements often include *Conospermum bmgessiorum*, *Angophora floribunda*, *Grevillea acerata*, *Comesperma ericinum*, *Calytrix tetragona*, *Mirbelia confertifolia*, *M. speciosa* subsp. *speciosa*, *Boronia anethifolia* and *Acacia* sp. aff. *conferta*. The shrubland communities are often composed of *Eucalyptus notabilis*, *E. codonocarpa*, *Angophora floribunda*, *Acacia* spp., *Acrotriche aggregata*, *Pultenaea* sp. B (Flora of NSW), *Telopea aspera* and *Dampiera lanceolata* var. *lanceolata*.

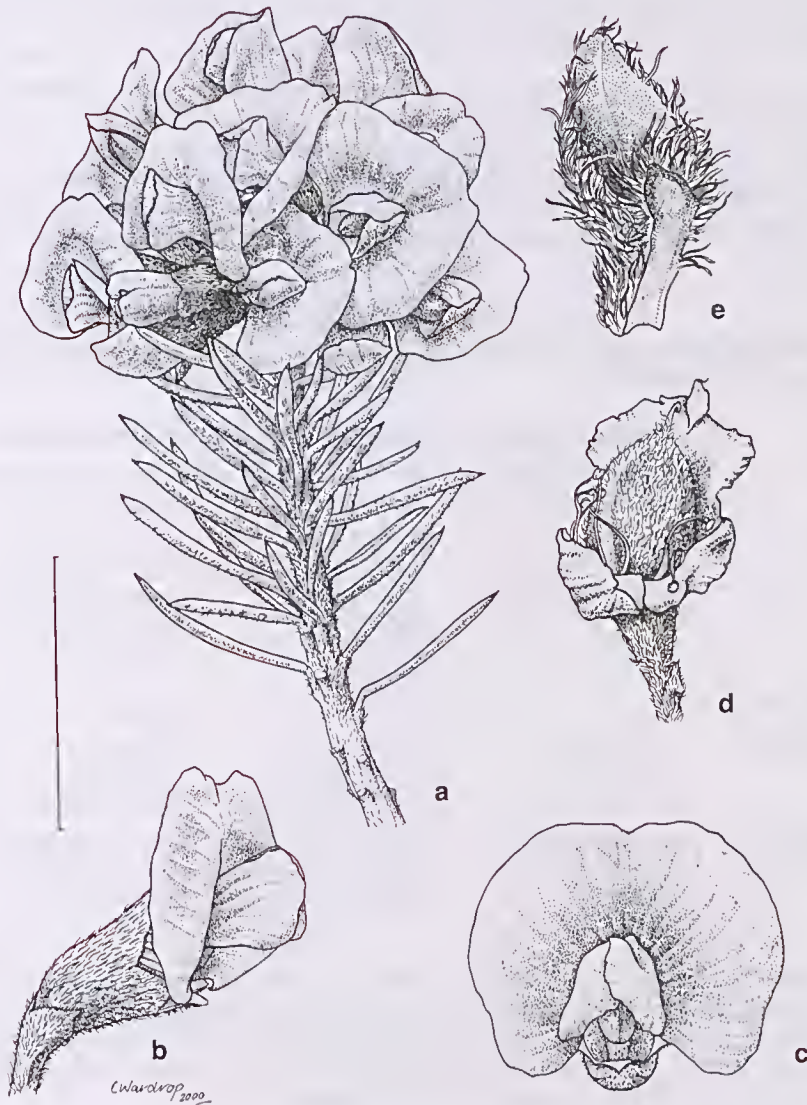


Fig 1. *Dillwynia rupestris*. a, flowering branch; b, side view of flower; c, front view of flower; d, pod; e, bract. (a, d, e from Crisp 7567 & Taylor; c and b from Jobson 5522 & Simpson). Scale bar: a = 1.5 cm; b = 2.5 mm; c-e = 1 cm.

Conservation Status: the confirmed populations of this species are wholly conserved within the Gibraltar Range National Park and Serpentine Nature Reserve. The main threat to this species is road widening; a number of individuals occur close to the Gwydir Highway. An inappropriate fire regime may also be a threat as this species appears to regenerate only from the soil seed bank. None of the individuals observed appeared to be lignotuberous. This species, because of its narrow distribution, should be coded 3RCt (Briggs & Leigh, 1996).

Etymology: the epithet *rupestris* is Latin meaning 'rocky' and refers to its preferred habitat of granite outcrops.

Notes: *Dillwynia rupestris* only came to the attention of botanists in the mid 1950s after the Gwydir Highway was constructed between Bald Knob and Jackadgery. The previous main road between Glen Innes and Grafton went through Newton Boyd and Dalmorton, some 50 kilometres south of the Gibraltar Range.

Dillwynia rupestris has long been regarded as distinct from *D. acicularis* Sieber ex DC. although obviously closely related; they can also be easily distinguished in the field. *Dillwynia rupestris* also morphologically closely resembles the Western Australian endemic *D. pungens* (Mackay ex Sweet) Benth., which also prefers granite outcrops. Table 1 compares these three species highlighting the morphological differences between them. The phylogenetic relationships of these three species are currently under study.

Table 1. Comparison of morphological characters and distribution between *Dillwynia rupestris*, *D. acicularis* and *D. pungens*.

Character	<i>Dillwynia rupestris</i>	<i>Dillwynia acicularis</i>	<i>Dillwynia pungens</i>
Habit	Stout, small tree-like shrub (single stemmed)	Slender filiform, multi-stemmed shrub	Stout, small tree-like shrub (single stemmed)
Leaves	0.6–2.1 cm long, 0.75–1.0 mm wide Mucros: 0.5–0.75 mm long, yellow or with brown tip	1.0–3.5 cm long, 0.5–0.75 mm wide Mucros: 0.5 mm long, yellow with brown tip or dark brown	1.3–2.1 cm long, 0.75–1.0 mm wide Mucros: 0.75–1.0 mm long, yellow with light brown tips
Leaf base scars	Present	Absent	Absent
Inflorescences	3–18 flowers Compact & tightly arranged	3–9 (–15) flowers Widely spaced & loosely arranged	3–9 flowers Compact & tightly arranged
Distribution & soil preference	NSW – New England Tablelands, prefers granite outcrops	NSW – Coxs Gap to Bargo, prefers sandstone screes	WA – Mt Many peaks to Cape Arid, prefers granite outcrops

Unsuccessful attempts were made in 1997 and 1998 to find the population at approximately 56–58 km from Glen Innes along the Gwydir Highway (e.g. *Burgess s.n.* (CBG 2758) and other collections made near there in the mid 1960s). That section of the Gwydir Highway is flanked by dense eucalypt forest, heavy clay soil and no obvious granite outcrop, conditions unsuitable for *D. rupestris*.

Selected specimens examined: New South Wales: Northern Tablelands: Gibraltar Range National Park, The Needles Lookout, 1.5 km NE of Dandahra Falls, 29°31'S 152°23'E, *Crisp 7567 & Taylor*, 2 Nov 1984 (fr.)(AD, CANB, MEL, NSW); Gibraltar Range National Park, 1 km S of Boundary Trig, 29°33'S 152°16'E, *Crisp 7373 & Telford*, 30 Sep 1984 (fl.)(CANB, MEL, NSW); Gibraltar Range

National Park, c. 67 km (42 miles) E of Glen Innes, *Coveny* 2243 3 Oct 1969 (fl.) (NSW); Gibraltar Range, 61 km NE of Glen Innes, crest of high ridge, 0.4 km S of road, *J.B. Williams* s.n., 26 Dec 1985 (fr.) (NE 42596A); New Gwydir Hwy, 36 miles [58.0 km] from Glen Innes, *C. Burgess* s.n., 25 Sep 1960 (CBG 2758); Gibraltar State Forest, 35 miles [56.4 km] E of Glen Innes, *J.B. Williams* 645, 4 Oct 1958 (fl.) (NSW, UNE).

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